ABSTRACT

~~A nuclear fusion reactor includes a structure for placing at least a portion of a liquid into a tension state, the tension state being below a cavitation threshold of the liquid. The tension state imparts stored energy into the liquid portion. A cavitation initiation source provides energy to the liquid portion sufficient to nucleate at least one bubble having a bubble radius greater than a critical bubble radius of the liquid. A structure for imploding the bubbles produces imploded cavities. The temperature generated by the implosion process can be sufficient to induce a nuclear fusion reaction involving the liquid. A method for providing nuclear fusion tensions a liquid, cavitates the tensioned liquid to form at least one bubble, then implodes the bubble, wherein a resulting temperature is generated that is sufficient to induce a nuclear fusion reaction involving the liquid.~~ A method for producing thermonuclear fusion includes the steps of providing a working liquid enriched with molecules having isotopic D or T atoms, degassing the liquid to reduce a dissolved gas content therein, and removing the dissolved gas using an applied vacuum. At least a portion of the liquid is placed into a tension state, a maximum tension in the tension state being below the cavitation threshold of the liquid. Fundamental particles are directed at the liquid portion when the liquid portion is in the tension state, the fundamental particles having sufficient energy to nucleate a plurality of bubbles from the liquid. The bubbles have a bubble radius greater than a critical bubble radius of the liquid. The bubbles grow and then implode, wherein a resulting temperature obtained from energy released from the implosion is sufficient to induce a nuclear fusion reaction of molecules having isotopic D or T atoms in the liquid portion.